RF/RMRS-97-014
REV. 0

RMRS Rocky Mountain Remediation Services, L.L.C.
... protecting the environment

SUPPLEMENTAL HEALTH AND SAFETY PLAN FOR THE FY97 WELL ABANDONMENT AND REPLACEMENT PROGRRAM

JUNE 23, 1997

1/17

RF/RMRS-97-014

Supplemental Health and Safety Plan for the FY97 Well Abandonment and Replacement Program

Revision 0

June 1997

This Supplemental Health and Safety Plan addresses the task specific hazards associated with the FY97 Well Abandonment and Replacement Program. FY97 WARP will be conducted using this HASP for task and area specific hazards, and the RMRS HASP for the 1996 WARP (RF/ER-96-0016) for programmatic and general hazards.

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

Document Number: RF/RMRS-97-014, Rev. 0

Effective Date: 06/23/97

Organization: Environmental Restoration

Title

Supplemental Health and Safety Plan for the FY97 Well Abandonment and Replacement Program

RMRS Project Manager — Date: 6/18/97

Health and Safety Supervisor — Date: 6-18-97

Health and Safety Specialist — Date: 6-19-97

Radiological Control — Date: 6/18/97

Quality Assurance — Date: 6-18-97

Supplemental Health and Safety Plan
WELL ABANDONMENT AND REPLACEMENT PROGRAM ACTIVITIES
DURING MAY-SEPTEMBER 1997
(Supplement to the Health and Safety Plan for the 1996 WARP, April 1996, RF/ER-96-0016)

Introduction.
This supplemental Health and Safety Plan (HASP) covers all activities to be performed as part of the 1997 Well Abandonment and Replacement Program (WARP). The HASP for the 1996 WARP remains the main HASP, and shall be followed except where this supplemental HASP supercedes the 1996 document.

The WARP will be conducted from May through September 1997. Activities will take place in the Industrial Area (IA), Protected Area (PA), several Individual Hazardous Substance Sites (IHSSs), and in other locations across the Rocky Flats Environmental Technology Site (RFETS).

The objective of the WARP is to identify wells that are no longer useful to the Groundwater Monitoring Program (GMP) and to abandon or replace them according to accepted procedures. In some cases, wells are not functioning properly and must be replaced. These nonviable wells typically have problems with their construction. Wells may also be abandoned because they monitor perennially dry locations, obstruct remediation and closure activities, or because they have served their purpose and are no longer needed. In addition to abandoning and replacing wells, a number of new monitoring wells will be installed as part of the 1997 WARP.

This supplemental HASP is only for work to be conducted as part of the 1997 WARP, as identified and discussed in the WARP Work Plan (RF/RMRS-97-003, May 1997) and the Addendum to that Work Plan. All 1997 WARP activities will be conducted in accordance with this supplemental HASP and the HASP for the 1996 WARP, where the 1996 HASP is not superceded by this supplemental HASP. All activities described in this supplemental HASP will be performed by or at the direction of Environmental Restoration Projects personnel. **Project contacts and emergency phone numbers are listed in Table 1.**

Description of Planned Intrusive Activities.
The 1997 WARP is scheduled to reduce the overall size of the monitoring well network. Almost 10 percent of the active wells listed in the RFETS master well list, for a total of up to 75 wells and piezometers, are scheduled for elimination as part of this project. Four replacement RFCA wells will be installed, and several other new wells will be installed for characterization or for plume excursion monitoring associated with the draft Integrated Monitoring Plan (IMP). Well abandonments will be performed according to the procedures specified in Operating Procedure (OP) GT.11, Plugging and Abandonment of Wells. Well installation will be performed according to procedures specified in OP GT.06, Monitoring Well and Piezometer Installation. In addition, several temporary piezometers (wellpoints) will be installed using a Geoprobe that will be operated according to procedures specified in OP GT. 39, Push Subsurface Soil Sample. Other Operating Procedures in the Geotechnical (GT), Groundwater (GW), and Field Operations (FO) areas also will be complied with, as they also apply to activities that will be performed in association with the WARP.

Most wells are scheduled to be abandoned in-place. This activity will generate very little waste, as only the above-ground protective casing, well casing, and concrete well pad, together with up to 5 feet of subsurface well casing, will be removed. No drilling will take place, and subsurface soils will be minimally disturbed. Other wells will be abandoned by pulling or overdrilling the casing or through destruction of the casing. These activities will result in the generation of varying amounts of wastes, which will include well construction materials, annular materials, and subsurface soils.

Wells within the landfill also will be abandoned in place, but in a potentially more intrusive manner than at in-place abandonments in other areas. In order to minimize the potential for disruption of landfill capping materials by well components, in-place abandonments here will include removing the upper three to five feet of below-ground well casing. These activities may entail some subsurface soil disturbance. In some cases, most notably the stainless steel-constructed 1986 and 1987 wells, in-place abandonment may prove difficult. Field personnel may choose to abandon these wells through overdrilling methods if the level of difficulty renders in-place methods infeasible. In all cases, however, crews engaged in these activities will attempt to minimize disturbance of subsurface soils.

Installation of monitoring wells using a drill rig will also generate wastes in the form of subsurface soils. Installation of temporary wellpoints and other investigations using the Geoprobe will generate minimal wastes. All wastes will be handled, containerized, and characterized in accordance with the relevant and appropriate OPs and the 1997 WARP Work Plan. The 1997 WARP Work Plan and its accompanying Addendum present a detailed description of affected wells and the activities to be conducted.

Hazard Assessment.
An Activity Hazard Analysis for 1997 WARP activities is presented in Table 2a.

Wildlife No wildlife hazards in addition to those addressed in the 1996 WARP HASP are anticipated.

Chemical and Radiological No hazards in addition to those addressed in the 1996 WARP HASP are anticipated unless work takes place in a posted rad area. **Work sites requiring a radiological work permit (RWP) are listed in the 1997 WARP soil disturbance permit. The radiological monitoring requirements for WARP field activities in a rad area are specified in Appendix A.**

WARP field activities also involves potential contact at some locations with soil and/or water containing concentrations of chemicals typically in the parts per billion range. The risk associated with these levels is very low, as these concentrations are one to three orders of magnitude below OSHA PELs. However, several locations may present higher levels of contamination; at these locations, personnel participating in intrusive WARP activities will use additional personal protective equipment (PPE). Particular attention will be paid to dust suppression and air monitoring activities at wells which have produced potentially contaminated groundwater, and personnel will use real-time air monitoring results to determine when and if it is necessary to upgrade to higher levels of PPE. **Table 2 summarizes potential task- and location-specific contamination hazards.**

Physical Heat and cold stress preventative guidelines detailed in the 1996 WARP HASP will be followed. Care will be taken to prevent injury due to slips, trips, and/or falls. All drilling locations for new wells and Geoprobe activities will be investigated for the presence of overhead and underground utility lines prior to the commencement of intrusive activities.

Welding and cutting of steel casings will be performed at some work sites. These operations will be conducted in accordance with the requirements of 1-W13-HSP-31.10, Hot Work. No hot work will be conducted without a hot work permit or on-site, trained Fire Watch. In the buffer zone and other areas with nearby combustible vegetation or materials, the area within a 35 foot radius of the work site will be wetted prior to and during hot work activities. Personnel conducting hot work activities will be required to wear personal protective equipment, such as flame-resistant gloves, face shields, and aprons, as determined by the nature of the work, in accordance with HSP 12.11, Welding, Cutting, and Brazing.

Wheels on the vehicle supporting the Geoprobe will be blocked during use of the probe, and only the operator, helper and HSS will be allowed in the immediate vicinity of the vehicle. The drill rig will also be immobilized during drilling activities, and only the drilling crew which includes the HSS will be allowed in the immediate vicinity of the rig.

Unanticipated Hazards or Conditions

Any hazards that may be encountered which are of an unusual nature or which represent an unknown threat will be managed in accordance with this RMRS policy statement. "In the event unanticipated hazards or conditions are encountered, the project activities will pause to assess the potential hazard or condition. The potential hazard or condition will be evaluated to determine the severity or significance of the hazard or condition and whether the controls on the project are sufficient to address the hazard or condition. Based on this initial evaluation, a determination will be made whether to proceed with controls currently in place; segregate the hazard or condition from the project activity, if it can be done safely; or curtail operations to address the unexpected hazard or condition. Concurrence to proceed down the selected path must be obtained from the RMRS Vice President or thier designee. In addition, the resumption of field activities involving radiological issues will be in accordance with Article 345 of the RFETS Radiological Control Manual."

Field Contamination Monitoring of Geoprobe Activities using Technician Support
Health and safety monitoring will be conducted during all WARP field activities, but certain Geoprobe activities may be conducted using field technicians. Health and safety monitoring for these activities are restricted to non-radioactive sites and are limited to the following monitoring requirements:

- Photoionization or flame ionization detector monitoring (PID/FID) for organic vapors during intrusive geoprobe activities.
- MIE miniram dust monitoring for respirable dust.
- Sound level meter and noise dosimeters to characterize noise exposure levels and need for coverage under hearing conservation program.
- Wet Bulb Globe Temperature (WBGT) and physiological monitoring to assess potential for heat stress.

Health and safety monitoring may be conducted by a field technician under the direct supervision of an on-site HSS under the following conditions:

- The proposed area of investigation is located outside of an AAC, PAC, IHSS, or other potential contaminant source area.
- The HSS is on site and maintains radio contact with the Geoprobe crew during intrusive activities.
- Contact must be made with the HSS if PID/FID or miniram readings exceed action levels during monitoring of subsurface core samples, boreholes or equipment. Work activities must cease and contact made with the HSS if sustained PID/FID readings exceed action levels in the breathing zone.
- Contact must be made with the HSS if noise or WBGT/physiological monitoring exceeds acceptable levels.

A training session will be conducted for field technicians by the HSS and Health and Safety Supervisor prior to the start-up of field activities. This briefing will be documented and will include the following topics:

- Instructions in the operation of field monitoring equipment.
- Responsibilities under CFR 1910.120 and the WARP HASP.
- Actions to take during thunderstorms, etc.
- Drilling rig safety.

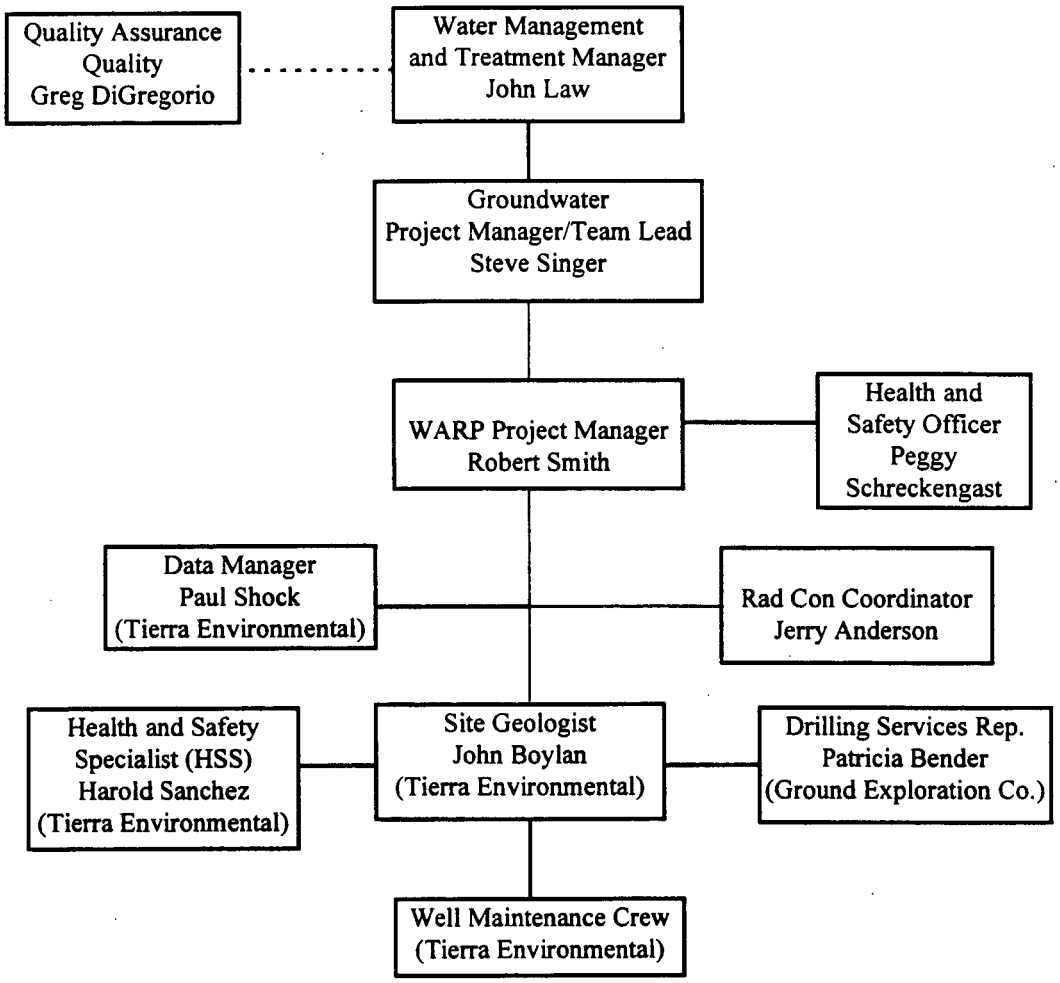
Equipment Decontamination/Radiological Contamination Monitoring.
Equipment used for intrusive operations will be decontaminated in accordance with accepted SOPs. Downhole equipment (such as auger flights) will be decontaminated between each location at which they are used. Gross decontamination of heavy equipment will be undertaken within the work area, and thorough decontamination at the Main Decontamination Facility (MDF) will be performed between areas. Radiological contamination monitoring will be performed for total fixed plus removable and removable

alpha and beta/gamma contamination prior to relocating heavy equipment. If contamination levels are below releasable limits, the equipment may be released to the next location or to the 891 Yard, as appropriate, by the HSS. If additional decontamination is necessary the equipment will be transported to the MDF for additional decontamination.

To reduce the amount of waste generated during decontamination, heavy equipment will not be taken to the MDF between each location in the same area unless different activities are to be performed or the equipment becomes excessively dirty. For example, the drill rig need not undergo full decontamination at the MDF between each abandonment location in the area of the Present Landfill. After completing all abandonment activities in this area and prior to initiating activities at a new area, however, the rig will be decontaminated at the MDF. To prevent cross-contamination, the rig will be decontaminated at the MDF prior to all well installations except when those wells are all within the same area, as at the PU&D Yard. In such cases, the rig will be decontaminated at the MDF prior to beginning work at the area and again upon completing all activities at that area, or more frequently if the rig becomes excessively dirty.

Project Organization.
The following organization chart shows the project responsibilities.

FY97 WELL ABANDONMENT AND REPLACEMENT PROGRAM
PROJECT ORGANIZATION



Personnel.
Personnel monitoring and decontamination procedures as described in the 1996 WARP HASP remain in effect.

Table 1. Emergency Contact Telephone and Pager Numbers.

Fire	x2911	Poison Center	629-1123
Ambulance	x2911		
Police	x2911		
Security	x2911		

Major routes to Emergency Medical Services (Building 122) are shown on Figure 1.

Access closest building to work site for nearest Telephone location.

Additional Project Telephone Numbers

Vice President, ER - Ann Tyson	x 4829/ dp 1101
H&S Manager - Ken Jenkins	x 5374/dp 7455
Project Manager - Rob Smith	x 7898/ dp 5135
Field Manager - John Boylan	x 5182
H&S Supervisor - Peggy Schreckengast	x 6790/ dp 3059/
HSS - Harold K Sanchez	x 4953/ dp 1171/ radio # 3713
HAZMAT Emergency Response	x 2911
Occupational Health General Information	x 2594
Rad Con Coordinator, ER - Jerry Anderson	x 6438/ dp 7447/ radio # 3242
RCT Formen Bldg 549 - Tim Hipsher (RCT Support)	x 2397/ dp 3369/ radio # 3271

Note: dp= digital page, which can be activated on RFETS by dialing extension 4000 and following the instructions.

Table 2. Task-Specific Hazards.

Location	Task Description	Potential Contaminants	PPE To Be Used
Wells 5074, 5174, 5274 (all SEPs); 5374, 5774 (both IA near IHSS 165); 5474, 5574, 5674 (all in/near IHSS 156.2); 5884, 5974, 6074, 6174, 6274, 6374 (all along Walnut Creek drainage); 6774 (BZ on Church Ditch); 1288 (IA near Bldg. 771); 1388(IA near Bldg. 779); 3786 (B-5)	Phase I wells to be abandoned in place. Subsurface soils will be minimally disturbed.	None.	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B
Well 0786 (Present Landfill)	Phase I well to be abandoned in place or by overdrilling. In-place	None. Although contaminants have been measured in groundwater from other wells in the area (OU7),	Start in Level D. Air monitoring

Location	Task Description	Potential Contaminants	PPE To Be Used
	abandonment will result in minimal disturbance of subsurface soils; if this method proves infeasible, overdrill methods will be used, and will disturb subsurface soils.	this well has not been impacted.	and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B
Wells 6474, 6574, 6674 (all Present Landfill); 31791 (Woman Creek south of 881 Hillside); 35691 (881 Hillside)	Phase I wells to be abandoned in place. Subsurface soils will be minimally disturbed.	Groundwater contaminants at these wells variously include vinyl chloride, TCE, methylene chloride, antimony, manganese, alpha BHC and beta BHC. However, the abandonment method precludes contact with contaminants.	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B
Wells 4387, 38191, 38291 (IHSS 119.1)	Phase I wells to be abandoned in place. Subsurface soils will be minimally disturbed.	Groundwater contaminants at these wells variously include organics, metals, anions, and radionuclides (plutonium and americium). However, the abandonment method precludes contact with contaminants.	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B
Wells B206589, 00493, 71493, 72493 (all Present Landfill)	Phase I wells to be abandoned in place/casing destruction. If casing destruction methods are employed, subsurface soils will be disturbed.	None anticipated. Although contaminants have been measured in groundwater from other wells in the area (OU7), these wells have not been impacted. The in place abandonment method, if employed, precludes contact with contaminants.	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B
Wells B106089,	Phase I wells to be	Groundwater contaminants at these	Start in Level

Location	Task Description	Potential Contaminants	PPE To Be Used
B206289, B206489, B206789, 00393, 71193, 71693, 71893, 72093, 72293, 72393 (all Present Landfill); 37991 (IHSS 119.1)	abandoned in place/casing destruction. If casing destruction methods are employed, subsurface soils will be disturbed.	wells variously include organics, metals, anions, and radionuclides (plutonium and americium). The in place abandonment method, if employed, precludes contact with contaminants. Otherwise, air monitoring will be performed during intrusive abandonments.	D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B
Well 6687 (Present Landfill)	Phase I well to be abandoned in place or by overdrilling. In-place abandonment will result in minimal disturbance of subsurface soils; if this method proves infeasible, overdrill methods will be used, and will disturb subsurface soils.	Groundwater contaminants at this well include organics and metals. The in place abandonment method, if employed, precludes contact with contaminants. Otherwise, air monitoring will be performed during intrusive abandonments.	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B
Wells 6187, 6287, 6487, 6587, 7087, 7287 (all Present Landfill)	Phase I well to be abandoned in place or by overdrilling. In-place abandonment will result in minimal disturbance of subsurface soils; if this method proves infeasible, overdrill methods will be used, and will disturb subsurface soils.	Groundwater contaminants at these wells variously include organics, metals, and anions. The in place abandonment method, if employed, precludes contact with contaminants. Otherwise, air monitoring will be performed during intrusive abandonments.	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B
Wells 01891, 12091 (IA, IHSS 108)	Phase I wells to be abandoned by casing destruction. Subsurface soils will be disturbed.	Groundwater contaminants at these wells variously include organics and radionuclides (americium).	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B

Location	Task Description	Potential Contaminants	PPE To Be Used
Well 0886 (Present Landfill)	Phase I well to be abandoned in place or by overdrilling. In-place abandonment will result in minimal disturbance of subsurface soils; if this method proves infeasible, overdrill methods will be used, and will disturb subsurface soils.	Minimal threat of contamination. Groundwater samples have contained very low levels of methylene chloride.	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B
Wells 00691, 00791, 00991, 05991 (all on hillside below 903 Pad);	Phase I wells to be abandoned in place or through casing destruction. In-place abandonment will result in minimal disturbance of subsurface soils; if this method proves infeasible, casing destruction methods will be used, and will disturb subsurface soils.	None. Although other wells in the vicinity of some of these locations have produced contaminated groundwater, these wells have not.	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B
Wells 0686 (No Name Gulch); B207289 (Present Landfill); B208389, B208489, 02391, 02791, 03891, 44993, 46493 (all along Walnut Creek drainage); P213889, P213989 (IA near IHSS 165/121); B317189, 40491, 40791 (all E. Boundary); 02191 (IA near Mound); 75892 (IHSS 156.2)	Phase II wells to be abandoned in place. Subsurface soils will be minimally disturbed.	None. Although other wells in the vicinity of some of these locations have produced contaminated groundwater, these wells have not, and the method of abandonment precludes contact with groundwater and subsurface soils.	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B
Wells 00197, 00697 (both Woman Creek); 00397, 00497, 01097, 01197, 01297, 01397, 01497, 01597 (all PU&D Yard area); 00597 (Present Landfill); 00997 (B-5)	New and replacement wells to be installed. Subsurface soils will be disturbed.	None anticipated. Well 00597 replaces 6687, which has produced waters with very low levels of organics and metals.Well 00697 replaces well 31791, which has produced waters with very low levels of organics. Well 00997 replaces well 3786, which has a history of no contamination. The others are outside IHSSs; nearby	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified

Location	Task Description	Potential Contaminants	PPE To Be Used
		wells show no or, in a few instances, very low levels of contaminants (organics, some metals and anions).	Level D,C,or B
Well 00897 (Mound area)	New well to be installed. Subsurface soils will be disturbed.	Located in the Mound area. Some potential for contact with contaminated materials. Wells nearby show very low to high concentrations of contaminants including organics and metals. However, the highest concentrations (to several hundred times the Tier 2 levels) are from bedrock groundwaters; alluvial groundwaters show no to minimal contamination.	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B
Wells 00297 (near SEPs); 00797 (881 Hillside)	New and replacement wells to be installed. Subsurface materials will be disturbed.	Well 00297 is new and will be located near the SEPs. Other wells in the immediate vicinity have produced groundwater variously contaminated with organics, metals, anions, and radionuclides (Am, Pu). Well 00797 replaces well 35691, which has produced low to moderate levels of organics and metals.	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B
Geoprobe wellpoints 01697, 01797, 01897, 01997, 02097, 02197 (all PU&D Yard area)	New wellpoints to be installed. Subsurface materials will be disturbed, but minimal waste will be generated.	These wellpoints will be located downgradient of the PU&D Yard. Wells in the immediate vicinity have produced groundwater variously contaminated with organics, metals, and anions. However, using a Geoprobe to install wellpoints minimizes the risk of coming into contact with contaminants.	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B
Geoprobe wellpoints 02297, 02397, 02497, 02597 (all adjacent to Bldg. 779)	New wellpoints to be installed. Subsurface materials will be disturbed, but minimal waste will be generated.	These wellpoints will be located adjacent to Building 779. Other wells in the immediate vicinity have produced groundwater variously contaminated with organics, metals, and anions. However, using a Geoprobe to	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate

Location	Task Description	Potential Contaminants	PPE To Be Used
		install wellpoints minimizes the risk of coming into contact with contaminants.	need to upgrade to Modified Level D,C,or B
Geoprobe investigations along the northern edge of the Industrial Area	New wellpoints to be installed. Subsurface materials will be disturbed, but minimal waste will be generated.	These wellpoints will be located north of Building 771. Other wells in the immediate vicinity have produced groundwater variously contaminated with organics, metals, and anions. However, using a Geoprobe to install wellpoints minimizes the risk of coming into contact with contaminants.	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B
Geoprobe investigations along the road adjacent to Ponds B-1, B-2, and B-3	New wellpoints to be installed. Subsurface materials will be disturbed, but minimal waste will be generated.	These wellpoints will be located between OUs 2 and 6. Other wells in the vicinity have produced groundwater variously contaminated with organics and metals. However, using a Geoprobe to install wellpoints minimizes the risk of coming into contact with contaminants.	Start in Level D. Air monitoring and/or soil conditions (wet, muddy) may indicate need to upgrade to Modified Level D,C,or B

Note: Data used to evaluate contamination hazards are from Tier 2 Ranking, and are thus very conservative.
SEPs: Solar Evaporation Ponds
IA: Industrial Area
BZ: Buffer Zone

TABLE 2a

Activity Hazard Analysis for Supplemental Health and Safety Plan - FY97 WARP

ACTIVITY DESCRIPTION: Well abandonment, installation, and sampling using a truck-mounted drilling rig and Geoprobe.

Activity	Potential Hazard	Protective Control Measures
1) Well abandonment and installation, including soil core and groundwater sampling	Slips, trips, and falls	Pre-activity work area survey to identify potential hazards associated with operations. Secure area, use safety shoes and glasses. Hazard assessment per section 5.3.6.*
	Exposure to airborne radioactive or chemical contaminants	On-site monitoring requirements will be established prior to project implementation per Section 6.0 and 7.0.*
	Dermal exposure with radioactive or chemical contaminants in soils and groundwater	Establish monitoring program prior to operations. Define appropriate level of PPE.
	Mechanical/hydraulic hazards	Pre-work safety discussion and procedures identified in Section 5.3.1.*
	Noise exposure	Hearing protection will be required during drilling and Geoprobe hammer operations.
	Electrical hazards	Clearances will be maintained per Section 5.3.2.*
	Hot work hazards	Fire and heat protection will be required during welding and cutting of steel casings.
	Vehicular and pedestrian traffic.	Site control will be maintained per Section 6.0.*
	Underground/above-ground utilities	Utility clearances will be performed per Section 5.3.*
	Manual material lifting	Personnel will follow safe lifting practices per Section 5.3.*
	Falling objects	Hard hats, steel-toed boots, and safety glasses will be worn per Section 8.0.*
	Cold stress/heat stress	Pre-work discussion to ensure awareness. Follow guidance in Section 5.7.*
2) Equipment decontamination	Contact with potentially contaminated rinse water	Personnel PPE will be defined prior to decon operations.
	Similiar exposure hazards as identified above	PPE and monitoring requirements consistent with intrusive and sampling operations.
	High pressure steaming, as appropriate	PPE as described in Section 8.0.*

*refers to the appropriate section in the WARP 1996 HSP RF/ER-96-0016

H&S CONCURRENCE: M.D. Sorrick DATE: 6-19-97

PROJECT MANAGER CONCURRENCE: Robert Smith DATE: 6/18/97

Site Location and Description:

Location : Present Landfill and vicinity

Description: Abandon up to 28 wells using in place abandonment methods as per Work Plan

Suspect Contaminants:

MONITORING REQUIREMENTS — ACTION LEVELS

	PEL	Instrument	Range	Level D modified	Level C	Level B	Notes
Hydrocarbons		TVA-1000B or					
		Minirae w/ 11.7 ev lamp					
		PID	0-2,000 ppm	>bkg	N/A	*	*Any sustained reading above background
		FID	0-50,000ppm	>bkg	N/A	*	in the BZ
Radionuclides (Applicable only if RWP required)		NE Electra DP6B	Alpha 0-1,000,000 cpm Beta Gamma 0-1,000,000 cpm	*	*	*	*At minimum comply RIO-3.02 Radioactive surface contamination limits, if RWP is in place RWP limits, hold points, and PPE requirements will be followed.
		Ludlum 2929/43-10-1	Alpha 0-999k cpm Beta Gamma 0-999k cpm	*	*	*	*At minimum comply RIO-3.02 Radioactive surface contamination limits, if RWP is in place RWP limits, hold points, and PPE requirements will be followed.
		Bicron Analyst Fiddler	Low Energy Radiation Radiation set up for 17 kev x-rays from transurantics 0-500k cpm	*	*	*	* Any reading above 2* background will stop work HSS will contact Rad Engineering for further Instructions.
Particulates	10 mg/m3	MIE Miniram	.1-100 mg/m3	0-1.5mg /m3	*	*	*Dust Control (misting) will be used above 1.5 mg/m3

Personal Monitoring

Contaminant	Analytical Method
Monitoring for VOA's using personal sampling methods, if necessary, upgrade for respiratory	NIOSH Methods
Monitoring for Methane in suspected area's,>25% LEL Explosion hazard. withdraw from area immediately.	NIOSH, OSHA, USCG, and EPA Methods

Personal Protective Equipment

Type of Work	Level D Doe Coveralls	Level D Modified	Tyvek Coveralls	Saranex Coveralls	Nitrile Gloves	Silvershield Gloves	Latex Gloves	Leather Work Gloves	Face Shield	Rubber Apron	Full Face Respirator	Level B Supplied Air
Well pad destruction	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Removing protective casing	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Removing 3'-5' of well casing	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Grouting casing / any void space	*	(3), (1)	(3)	(1)	*				(1)			(2)
Handling IDM	*	(3), (1)	(3)	(1)	*				(1)			(2)

(1) If high VOA's reading or free liquids are encountered personal will upgrade to Saranex and Face Shields. Sustained readings of VOC's in breathing zone will require backing off and allowing samples to vent, if their is no wind present the use of large industrial size fan will be used.

(2) If workers must work where VOC readings are sustained in the breathing zone, work will stop and supplied air respiratory protection will be used and more protective PPE requirements.

(3) If RWP is needed

(*) Required under normal operations or can be changed at the desecration of HSS.

Notes

PEL = Permissible Exposure Limit
PID = Photoionization Detector
FID = Flameionization Detector
ppm = parts per million
cpm = counts per minute
mg/m3 = milligrams per cubic meter
PPE = Personal Protective Equipment
VOA = Volatile Organic Analyte
IDM = Investigative derived materials (typically soils)
OSHA = Occupational Safety and Health Administration
EPA = U.S. Environmental Protecton Agency
USCG = U.S. Coast Guard

Revised Appendix A of Supplemental HASP for the FY97 WARP

Site Location and Description:

Location : Present Landfill and vicinity, IHSS 119.1

Description: Abandon up to 19 wells using intrusive abandonment methods, if unable to abandon in place per Revised Appendix A, pages 11 and 14.

Suspect Contaminants:

MONITORING REQUIREMENTS — ACTION LEVELS

	PEL	Instrument	Range	Level D modified	Level C	Level B	Notes
Hydrocarbons		TVA-1000B or					
		Minirae w/11.7 ev lamp					
		PID	0-2,000 ppm	>bkg	N/A	*	*Any sustained reading above background
		FID	0-50,000ppm	>bkg	N/A	*	in the BZ
Radionuclides		NE Electra DP6B	Alpha 0-1,000,000 cpm Beta Gamma 0-1,000,000 cpm	*	*	*	*At minimum comply RIO-3.02 Radioactive surface contamination limits, if RWP is in place RWP limits, hold points, and PPE requirements will be followed.
		Ludlum 2929/43-10-1	Alpha 0-999k cpm Beta Gamma 0-999k cpm	*	*	*	*At minimum comply RIO-3.02 Radioactive surface contamination limits, if RWP is in place RWP limits, hold points, and PPE requirements will be followed.
		Bicron Analyst Fiddler	Low Energy Radiation Radiation set up for 17 kev x-rays from transurantics 0-500k cpm	*	*	*	* Any reading above 2* background will stop work HSS will contact Rad Engineering for further Instructions.
Particulates	10 mg/m3	MIE Miniram	.1-100 mg/m3	0-1.5mg /m3	*	*	*Dust Control (misting) will be used above 1.5 mg/m3

Personal Monitoring

Contaminant	Analytical Method
Monitoring for VOA's using personal sampling methods, if necessary, upgrade for respiratory	NIOSH Methods
Monitoring for Methane in suspected area's,>25% LEL Explosion hazard. withdraw from area immediately.	NIOSH, OSHA, USCG, and EPA Methods

Personal Protective Equipment

Type of Work	Level D Doe Coveralls	Level D Modified	Tyvek Coveralls	Saranex Coveralls	Nitrile Gloves	Silvershield Gloves	Latex Gloves	Leather ork Glove	Face Shield	Rubber Apron	Full Face Respirator	Level B Supplied Air
Well pad destruction	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Removing protective casing	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Removing 3'-5' of well casing	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Grouting casing / any void space	*	(3), (1)	(3)	(1)	*				(1)			(2)
Overdrilling wells (if necessary)	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Casing destruction (if necessary)	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Handling IDM	*	(3), (1)	(3)	(1)	*				(1)			(2)

(1) If high VOA's reading or free liquids are encountered personal will upgrade to Saranex and Face Shields. Sustained readings of VOC's in breathing zone will require backing off and allowing samples to vent, if their is no wind present the use of large industrial size fan will be used.

(2) If workers must work where VOC readings are sustained in the breathing zone, work will stop and supplied air respiratory protection will be used and more protective PPE requirements.

(3) If RWP is needed

(*) Required under normal operations or can be changed at the desecration of HSS.

Notes

PEL = Permissible Exposure Limit
PID = Photoionization Detector
FID = Flameionization Detector
ppm = parts per million
cpm = counts per minute
mg/m3 = milligrams per cubic meter
PPE = Personal Protective Equipment
VOA = Volatile Organic Analyte
IDM = Investigative derived materials (typically soils)
OSHA = Occupational Safety and Health Administration
EPA = U.S. Environmental Protecton Agency
USCG = U.S. Coast Guard

Site Location and Description:

Location : Various locations in Buffer Zone, Industrial Area, Protected Area, and Controlled Area.

Description: Abandon 41 wells in place.

Suspect Contaminants:

MONITORING REQUIREMENTS — ACTION LEVELS

	PEL	Instrument	Range	Level D modified	Level C	Level B	Notes
Hydrocarbons		TVA-1000B or					
		Minirae w/ 11.7 ev lamp					
		PID	0-2,000 ppm	>bkg	N/A	*	*Any sustained reading above background
		FID	0-50,000ppm	>bkg	N/A	*	in the BZ
Radionuclides (Applicable only if RWP required)		NE Electra DP6B	Alpha 0-1,000,000 cpm Beta Gamma 0-1,000,000 cpm	*	*	*	*At minimum comply RIO-3.02 Radioactive surface contamination limits, if RWP is in place RWP limits, hold points, and PPE requirements will be followed.
		Ludlum 2929/43-10-1	Alpha 0-999k cpm Beta Gamma 0-999k cpm	*	*	*	*At minimum comply RIO-3.02 Radioactive surface contamination limits, if RWP is in place RWP limits, hold points, and PPE requirements will be followed.
		Bicron Analyst Fiddler	Low Energy Radiation Radiation set up for 17 kev x-rays from transurantics 0-500k cpm	*	*	*	* Any reading above 2* background will stop work HSS will contact Rad Engineering for further Instructions.
Particulates	10 mg/m3	MIE Miniram	.1-100 mg/m3	0-1.5mg /m3	*	*	*Dust Control (misting) will be used above 1.5 mg/m3

Personal Monitoring

Contaminant	Analytical Method
Monitoring for VOA's using personal sampling methods, if necessary, upgrade for respiratory	NIOSH Methods
Monitoring for Methane in suspected area's,>25% LEL Explosion hazard. withdraw from area immediately.	NIOSH, OSHA, USCG, and EPA Methods

Personal Protective Equipment

Type of Work	Level D Doe Coveralls	Level D Modified	Tyvek Coveralls	Saranex Coveralls	Nitrile Gloves	Silvershield Gloves	Latex Gloves	Leather Work Gloves	Face Shield	Rubber Apron	Full Face Respirator	Level B Supplied Air
Well pad destruction	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Removing protective casing	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Removing 0'-3' of well casing	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Grouting casing / any void space	*	(3), (1)	(3)	(1)	*				(1)			(2)
Handling IDM	*	(3), (1)	(3)	(1)	*				(1)			(2)

(1) If high VOA's reading or free liquids are encountered personal will upgrade to Saranex and Face Shields. Sustained readings of VOC's in breathing zone will require backing off and allowing samples to vent, if their is no wind present the use of large industrial size fan will be used.

(2) If workers must work where VOC readings are sustained in the breathing zone, work will stop and supplied air respiratory protection will be used and more protective PPE requirements.

(3) If RWP is needed

(*) Required under normal operations or can be changed at the desecration of HSS.

Notes

PEL = Permissible Exposure Limit
PID = Photoionization Detector
FID = Flameionization Detector
ppm = parts per million
cpm = counts per minute
mg/m3 = milligrams per cubic meter
PPE = Personal Protective Equipment
VOA = Volatile Organic Analyte
IDM = Investigative derived materials (typically soils)
OSHA = Occupational Safety and Health Administration
EPA = U.S. Environmental Protecton Agency
USCG = U.S. Coast Guard

Site Location and Description:

Location : IHSS 119.1

Description: Abandon up to 4 wells in place (wells 4387, 37991, 38191 and 38291).

Suspect Contaminants:

MONITORING REQUIREMENTS | ACTION LEVELS

	PEL	Instrument	Range	Level D modified	Level C	Level B	Notes
Hydrocarbons		TVA-1000B or					
		Minirae w/ 11.7 ev lamp					
		PID	0-2,000 ppm	>bkg	N/A	*	*Any sustained reading above background
		FID	0-50,000ppm	>bkg	N/A	*	in the BZ
Radionuclides		NE Electra DP6B	Alpha 0-1,000,000 cpm Beta Gamma 0-1,000,000 cpm	*	*	*	*At minimum comply RIO-3.02 Radioactive surface contamination limits, if RWP is in place RWP limits, hold points, and PPE requirements will be followed.
		Ludlum 2929/43-10-1	Alpha 0-999k cpm Beta Gamma 0-999k cpm	*	*	*	*At minimum comply RIO-3.02 Radioactive surface contamination limits, if RWP is in place RWP limits, hold points, and PPE requirements will be followed.
		Bicron Analyst Fiddler	Low Energy Radiation Radiation set up for 17 kev x-rays from transurantics 0-500k cpm	*	*	*	* Any reading above 2* background will stop work HSS will contact Rad Engineering for further Instructions.
Particulates	10 mg/m3	MIE Miniram	.1-100 mg/m3	0-1.5mg /m3	*	*	*Dust Control (misting) will be used above 1.5 mg/m3

Personal Monitoring

Contaminant	Analytical Method
Monitoring for VOA's using personal sampling methods, if necessary, upgrade for respiratory	NIOSH Methods
Monitoring for Methane in suspected area's,>25% LEL Explosion hazard. withdraw from area immediately.	NIOSH, OSHA, USCG, and EPA Methods

Personal Protective Equipment

Type of Work	Level D Doe Coveralls	Level D Modified	Tyvek Coveralls	Saranex Coveralls	Nitrile Gloves	Silvershield Gloves	Latex Gloves	Leather Work Gloves	Face Shield	Rubber Apron	Full Face Respirator	Level B Supplied Air
Well pad destruction	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Removing protective casing	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Removing 0'-3' of well casing	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Grouting casing/ hole/ void space	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Handling IDM	*	(3), (1)	(3)	(1)	*				(1)			(2)

(1) If high VOA's reading or free liquids are encountered personal will upgrade to Saranex and Face Shields. Sustained readings of VOC's in breathing zone will require backing off and allowing samples to vent, if their is no wind present the use of large industrial size fan will be used.

(2) If workers must work where VOC readings are sustained in the breathing zone, work will stop and supplied air respiratory protection will be used and more protective PPE requirements.

(3) If RWP is needed

(*) Required under normal operations or can be changed at the desecration of HSS.

Notes

PEL = Permissible Exposure Limit
PID = Photoionization Detector
FID = Flameionization Detector
ppm = parts per million
cpm = counts per minute
mg/m3 = milligrams per cubic meter
PPE = Personal Protective Equipment
VOA = Volatile Organic Analyte
IDM = Investigative derived materials (typically soils)
OSHA = Occupational Safety and Health Administration
EPA = U.S. Environmental Protecton Agency
USCG = U.S. Coast Guard

Site Location and Description:

Location : Southern Edge of IHSS 108 and northeast of Mound site.

Description: Abandon 2 wells (01891 and 12091) by casing destruction; install 1 well (00897).

Suspect Contaminants:

MONITORING REQUIREMENTS — ACTION LEVELS

	PEL	Instrument	Range	Level D modified	Level C	Level B	Notes
Hydrocarbons		TVA-1000B or Minirae w/ 11.7 ev lamp					
		PID	0-2,000 ppm	>bkg	N/A	*	*Any sustained reading above background in the BZ
		FID	0-50,000ppm	>bkg	N/A	*	
Radionuclides		NE Electra DP6B	Alpha 0-1,000,000 cpm Beta Gamma 0-1,000,000 cpm	*	*	*	*At minimum comply RIO-3.02 Radioactive surface contamination limits, if RWP is in place RWP limits, hold points, and PPE requirements will be followed.
		Ludlum 2929/43-10-1	Alpha 0-999k cpm Beta Gamma 0-999k cpm	*	*	*	*At minimum comply RIO-3.02 Radioactive surface contamination limits, if RWP is in place RWP limits, hold points, and PPE requirements will be followed.
		Bicron Analyst Fiddler	Low Energy Radiation Radiation set up for 17 kev x-rays from transurantics 0-500k cpm	*	*	*	* Any reading above 2* background will stop work HSS will contact Rad Engineering for further Instructions.
Particulates	10 mg/m3	MIE Miniram	.1-100 mg/m3	0-1.5mg /m3	*	*	*Dust Control (misting) will be used above 1.5 mg/m3

Personal Monitoring

Contaminant	Analytical Method
Monitoring for VOA's using personal sampling methods, if necessary, upgrade for respiratory	NIOSH Methods
Monitoring for Methane in suspected area's,>25% LEL Explosion hazard. withdraw from area immediately.	NIOSH, OSHA, USCG, and EPA Methods

Personal Protective Equipment

Type of Work	Level D Doe Coveralls	Level D Modified	Tyvek Coveralls	Saranex Coveralls	Nitrile Gloves	Silvershield Gloves	Latex Gloves	Leather Work Gloves	Face Shield	Rubber Apron	Full Face Respirator	Level B Supplied Air
Well pad destruction	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Removing protective casing	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Casing destruction (if necessary)	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Grouting Hole	*	(3), (1)	(3)	(1)	*							(2)
Drilling	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Handling / Logging Core	*	(3), (1)	(3)	(1)	*				(1)			(2)
Install new well	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Handling IDM	*	(3), (1)	(3)	(1)	*				(1)			(2)

(1) If high VOA's reading or free liquids are encountered personal will upgrade to Saranex and Face Shields. Sustained readings of VOC's in breathing zone will require backing off and allowing samples to vent, if their is no wind present the use of large industrial size fan will be used.

(2) If workers must work where VOC readings are sustained in the breathing zone, work will stop and supplied air respiratory protection will be used and more protective PPE requirements.

(3) If RWP is needed

(*) Required under normal operations or can be changed at the desecration of HSS.

Notes

PEL = Permissible Exposure Limit
PID = Photoionization Detector
FID = Flameionization Detector
ppm = parts per million
cpm = counts per minute
mg/m3 = milligrams per cubic meter
PPE = Personal Protective Equipment
VOA = Volatile Organic Analyte
IDM = Investigative derived materials (typically soils)
OSHA = Occupational Safety and Health Administration
EPA = U.S. Environmental Protecton Agency
USCG = U.S. Coast Guard

Revised Appendix A of Supplemental HASP for the FY97 WARP

Site Location and Description:

Location : PU&D Yard and vicinity

Description: Install 6 new wells using drilling rig (well nos. 01097 through 01597).

Suspect Contaminants:

MONITORING REQUIREMENTS — ACTION LEVELS

	PEL	Instrument	Range	Level D modified	Level C	Level B	Notes
Hydrocarbons		TVA-1000B or					
		Minirae w/ 11.7 ev lamp					
		PID	0-2,000 ppm	>bkg	N/A	*	*Any sustained reading above background
		FID	0-50,000ppm	>bkg	N/A	*	in the BZ
Particulates	10 mg/m3	MIE Miniram	.1-100 mg/m3	0-1.5mg /m3	*	*	*Dust Control (misting) will be used above 1.5 mg/m3

Personal Monitoring

Contaminant	Analytical Method
Monitoring for VOA's using personal sampling methods, if necessary, upgrade for respiratory	NIOSH Methods
Monitoring for Methane in suspected area's,>25% LEL Explosion hazard. withdraw from area immediately.	NIOSH, OSHA, USCG, and EPA Methods

Personal Protective Equipment

Type of Work	Level D Doe Coveralls	Level D Modified	Tyvek Coveralls	Saranex Coveralls	Nitrile Gloves	Silvershield Gloves	Latex Gloves	Leather Work Gloves	Face Shield	Rubber Apron	Full Face Respirator	Level B Supplied Air
Drilling	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Handling / Logging Core	*	(3), (1)	(3)	(1)	*				(1)			(2)
Installing new wells	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Handling IDM	*	(3), (1)	(3)	(1)	*				(1)			(2)

(1) If high VOA's reading or free liquids are encountered personal will upgrade to Saranex and Face Shields. Sustained readings of VOC's in breathing zone will require backing off and allowing samples to vent, if their is no wind present the use of large industrial size fan will be used.

(2) If workers must work where VOC readings are sustained in the breathing zone, work will stop and supplied air respiratory protection will be used and more protective PPE requirements.

(3) If RWP is needed

(*) Required under normal operations or can be changed at the desecration of HSS.

Notes

PEL = Permissible Exposure Limit
PID = Photoionization Detector
FID = Flameionization Detector
ppm = parts per million
cpm = counts per minute
mg/m3 = milligrams per cubic meter
PPE = Personal Protective Equipment
VOA = Volatile Organic Analyte
IDM = Investigative derived materials (typically soils)
OSHA = Occupational Safety and Health Administration
EPA = U.S. Environmental Protecton Agency
USCG = U.S. Coast Guard

Site Location and Description:

Location : Wells 3786, 6687, 31791, 35691

Install new replacement wells (nos. 00997, 00597, 00697, and 00797, respectively).

Suspect Contaminants:

MONITORING REQUIREMENTS — ACTION LEVELS

	PEL	Instrument	Range	Level D modified	Level C	Level B	Notes
Hydrocarbons		TVA-1000B or					
		Minirae w/ 11.7 ev lamp					
		PID	0-2,000 ppm	>bkg	N/A	*	*Any sustained reading above background
		FID	0-50,000ppm	>bkg	N/A	*	in the BZ
Radionuclides		NE Electra DP6B	Alpha 0-1,000,000 cpm Beta Gamma 0-1,000,000 cpm	*	*	*	*At minimum comply RIO-3.02 Radioactive surface contamination limits, if RWP is in place RWP limits, hold points, and PPE requirements will be followed.
		Ludlum 2929/43-10-1	Alpha 0-999k cpm Beta Gamma 0-999k cpm	*	*	*	*At minimum comply RIO-3.02 Radioactive surface contamination limits, if RWP is in place RWP limits, hold points, and PPE requirements will be followed.
		Bicron Analyst Fiddler	Low Energy Radiation Radiation set up for 17 kev x-rays from transurantics 0-500k cpm	*	*	*	* Any reading above 2* background will stop work HSS will contact Rad Engineering for further Instructions.
Particulates	10 mg/m3	MIE Miniram	.1-100 mg/m3	0-1.5mg /m3	*	*	*Dust Control (misting) will be used above 1.5 mg/m3

Personal Monitoring

Contaminant	Analytical Method
Monitoring for VOA's using personal sampling methods, if necessary, upgrade for respiratory	NIOSH Methods
Monitoring for Methane in suspected area's,>25% LEL Explosion hazard. withdraw from area immediately.	NIOSH, OSHA, USCG, and EPA Methods

Personal Protective Equipment

Type of Work	Level D Doe Coveralls	Level D Modified	Tyvek Coveralls	Saranex Coveralls	Nitrile Gloves	Silvershield Gloves	Latex Gloves	Leather Work Gloves	Face Shield	Rubber Apron	Full Face Respirator	Level B Supplied Air
Drilling	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Handling / Logging Core	*	(3), (1)	(3)	(1)	*				(1)			(2)
Installing new wells	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Handling IDM	*	(3), (1)	(3)	(1)	*				(1)			(2)

(1) If high VOA's reading or free liquids are encountered personal will upgrade to Saranex and Face Shields. Sustained readings of VOC's in breathing zone will require backing off and allowing samples to vent, if their is no wind present the use of large industrial size fan will be used.

(2) If workers must work where VOC readings are sustained in the breathing zone, work will stop and supplied air respiratory protection will be used and more protective PPE requirements.

(3) If RWP is needed

(*) Required under normal operations or can be changed at the desecration of HSS.

Notes

PEL = Permissible Exposure Limit
PID = Photoionization Detector
FID = Flameionization Detector
ppm = parts per million
cpm = counts per minute
mg/m3 = milligrams per cubic meter
PPE = Personal Protective Equipment
VOA = Volatile Organic Analyte
IDM = Investigative derived materials (typically soils)
OSHA = Occupational Safety and Health Administration
EPA = U.S. Environmental Protecton Agency
USCG = U.S. Coast Guard

Site Location and Description:

Location : Woman Creek; inside Protected Area near OU4; Mound Area; south of PU&D yard in Walnut Creek.

Description: Install new wells (nos. 00197, 00297, 00397, 00497, 00897, respectively).

Suspect Contaminants:

MONITORING REQUIREMENTS — ACTION LEVELS

	PEL	Instrument	Range	Level D modified	Level C	Level B	Notes
Hydrocarbons		TVA-1000B or					
		Minirae w/ 11.7 ev lamp					
		PID	0-2,000 ppm	>bkg	N/A	*	*Any sustained reading above background
		FID	0-50,000ppm	>bkg	N/A	*	in the BZ
Radionuclides		NE Electra DP6B	Alpha 0-1,000,000 cpm Beta Gamma 0-1,000,000 cpm	*	*	*	*At minimum comply RIO-3.02 Radioactive surface contamination limits, if RWP is in place RWP limits, hold points, and PPE requirements will be followed.
		Ludlum 2929/43-10-1	Alpha 0-999k cpm Beta Gamma 0-999k cpm	*	*	*	*At minimum comply RIO-3.02 Radioactive surface contamination limits, if RWP is in place RWP limits, hold points, and PPE requirements will be followed.
		Bicron Analyst Fiddler	Low Energy Radiation Radiation set up for 17 kev x-rays from transurantics 0-500k cpm	*	*	*	* Any reading above 2* background will stop work HSS will contact Rad Engineering for further Instructions.
Particulates	10 mg/m3	MIE Miniram	.1-100 mg/m3	0-1.5mg /m3	*	*	*Dust Control (misting) will be used above 1.5 mg/m3

Personal Monitoring

Contaminant	Analytical Method
Monitoring for VOA's using personal sampling methods, if necessary, upgrade for respiratory	NIOSH Methods
Monitoring for Methane in suspected area's,>25% LEL Explosion hazard. withdraw from area immediately.	NIOSH, OSHA, USCG, and EPA Methods

Personal Protective Equipment

Type of Work	Level D Doe Coveralls	Level D Modified	Tyvek Coveralls	Saranex Coveralls	Nitrile Gloves	Silvershield Gloves	Latex Gloves	Leather Work Gloves	Face Shield	Rubber Apron	Full Face Respirator	Level B Supplied Air
Drilling	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Handling / Logging Core	*	(3), (1)	(3)	(1)	*				(1)			(2)
Installing new wells	*	(3), (1)	(3)	(1)	*			*	(1)			(2)
Handling IDM	*	(3), (1)	(3)	(1)	*				(1)			(2)

(1) If high VOA's reading or free liquids are encountered personal will upgrade to Saranex and Face Shields. Sustained readings of VOC's in breathing zone will require backing off and allowing samples to vent, if their is no wind present the use of large industrial size fan will be used.

(2) If workers must work where VOC readings are sustained in the breathing zone, work will stop and supplied air respiratory protection will be used and more protective PPE requirements.

(3) If RWP is needed

(*) Required under normal operations or can be changed at the desecration of HSS.

Notes

PEL = Permissible Exposure Limit
PID = Photoionization Detector
FID = Flameionization Detector
ppm = parts per million
cpm = counts per minute
mg/m3 = milligrams per cubic meter
PPE = Personal Protective Equipment
VOA = Volatile Organic Analyte
IDM = Investigative derived materials (typically soils)
OSHA = Occupational Safety and Health Administration
EPA = U.S. Environmental Protecton Agency
USCG = U.S. Coast Guard

Site Location and Description:

Location : East of PU&D Yard; north of Industrial Area; south of B-1, B-2, and B-3; and around Building 779 (well nos. 02297 through 02597)

Description: Perform Geoprobe investigations; install and sample new well points.

Suspect Contaminants:

MONITORING REQUIREMENTS — ACTION LEVELS

	PEL	Instrument	Range	Level D modified	Level C	Level B	Notes
Hydrocarbons		TVA-1000B or					
		Minirae w/ 11.7 ev lamp					
		PID	0-2,000 ppm	>bkg	N/A	*	*Any sustained reading above background
		FID	0-50,000ppm	>bkg	N/A	*	in the BZ
Radionuclides (Applicable only if RWP required)		NE Electra DP6B	Alpha 0-1,000,000 cpm Beta Gamma 0-1,000,000 cpm	*	*	*	*At minimum comply RIO-3.02 Radioactive surface contamination limits, if RWP is in place RWP limits, hold points, and PPE requirements will be followed.
		Ludlum 2929/43-10-1	Alpha 0-999k cpm Beta Gamma 0-999k cpm	*	*	*	*At minimum comply RIO-3.02 Radioactive surface contamination limits, if RWP is in place RWP limits, hold points, and PPE requirements will be followed.
		Bicron Analyst Fiddler	Low Energy Radiation Radiation set up for 17 kev x-rays from transurantics 0-500k cpm	*	*	*	* Any reading above 2* background will stop work HSS will contact Rad Engineering for further Instructions.
Particulates	10 mg/m3	MIE Miniram	.1-100 mg/m3	0-1.5mg /m3	*	*	*Dust Control (misting) will be used above 1.5 mg/m3

Personal Monitoring

Contaminant	Analytical Method
Monitoring for VOA's using personal sampling methods, if necessary, upgrade for respiratory	NIOSH Methods
Monitoring for Methane in suspected area's,>25% LEL Explosion hazard. withdraw from area immediately.	NIOSH, OSHA, USCG, and EPA Methods

Personal Protective Equipment

Type of Work	Level D Coveralls	Level D Modified	Tyvek Coveralls	Saranex Coveralls	Nitrile Gloves	Silvershield Gloves	Latex Gloves	Leather Work Gloves	Face Shield	Rubber Apron	Full Face Respirator	Level B Supplied Air
Push-coring	*	(3), (1)	(3)	(1)	*				(1)			(2)
Handling/Logging Core	*	(3), (1)	(3)	(1)	*				(1)			(2)
Installing well points	*	(3), (1)	(3)	(1)	*				(1)			(2)
Sample groundwater	*	(3), (1)	(3)	(1)	*				(1)			(2)
Handling IDM	*	(3), (1)	(3)	(1)	*				(1)			(2)

(1) If high VOA's reading or free liquids are encountered personal will upgrade to Saranex and Face Shields. Sustained readings of VOC's in breathing zone will require backing off and allowing samples to vent, if their is no wind present the use of large industrial size fan will be used.

(2) If workers must work where VOC readings are sustained in the breathing zone, work will stop and supplied air respiratory protection will be used and more protective PPE requirements.

(3) If RWP is needed

(*) Required under normal operations or can be changed at the desecration of HSS.

Notes

PEL = Permissible Exposure Limit
PID = Photoionization Detector
FID = Flameionization Detector
ppm = parts per million
cpm = counts per minute
mg/m3 = milligrams per cubic meter
PPE = Personal Protective Equipment
VOA = Volatile Organic Analyte
IDM = Investigative derived materials (typically soils)
OSHA = Occupational Safety and Health Administration
EPA = U.S. Environmental Protecton Agency
USCG = U.S. Coast Guard

Exposure limits for substances that have been reported to exceed Tier2 levels in groundwater from 1997 WARP well abandonments.

Tier2 GW Analytes in WARP wells	NIOSH, OSHA, IDLH (ppm unless indicated; mg=mg/m3); 1ppm=(x)mg; page in NIOSH Guide	Wells Containing This Analyte in Quantities Exceeding Tier2 Action Levels
1,1-Dichloroethane	100, 100, 3000; (4.12); p.98	4387, 6487, 71693, 7287, B106089, B206489, 38291
1,1-Dichloroethene	*Ca*, none, *Ca*/N.D.; (4.03); p.332	4387, 6587, 6687, 71893, B106089, 38291
1,1,2-Trichloroethane	*Ca*/10(skin), 10(skin), *Ca*/100; (5.55); p.314	4387
1,2-Dichloroethane	*Ca*/1/ST 2, 50/C100, *Ca*/50; (4.11); p.136	4387
1,2-Dichloropropane	*Ca*, 75, 400; (4.70); p.268	B106089
4-Methyl-2-Pentanone	50, 100, 500; (4.17); p.164	72293
alpha-BHC		35691
Aluminum	10mgTotal/5mgResp, 15mgTotal/5mgResp, N.D.; –; p.12 [NIOSH=2mg as soluble salts]	7287
Americium-241		12091, 72393
Antimony	0.5mg, 0.5mg, 50mg; –; p.18	4387, 37991, 35691, 6487, 72393, 7287
Aroclor-1232		72093, 72293, 72393
Aroclor-1242	*Ca*/0.001mg, 1mg(skin), *Ca*/5mg; (~10.72); p.64	72093, 72393
Arsenic	(inorganic) *Ca*/C 0.002mg, 0.01mg, *Ca*/5mg; –; p.20	72293
Barium		7287
Benzene	*Ca*/0.1, 1, *Ca*/500; (3.25); p.26	72393
Beryllium	*Ca*/0.0005mg, 0.002mg, *Ca*/4mg; –; p.28	6687, 72093, 7287
beta-BHC		35691
Bis(2-Ethylhexyl)Phthalate	*Ca*/5mg/ST 10mg, 5mg, *Ca*/5000mg; (16.23); p.118	37991, 00393, 71193, 72093, 72293, 72393
Cadmium	*Ca*, 0.005mg, *Ca*/9mg; –; p.44	7287
Carbon Tetrachloride	*Ca*/ST(60min)=2, 10, *Ca*/200; (6.39); p.54	4387, 7287, B106089
Chromium	0.5mg (as Cr(VI), 0.001 for 10hrTWA), 1mg, 250mg; –; p.72	0686, 4387, 72093, 7287
Copper	(as dust,mist) 1mg, 1mg, 100mg; –; p.76	6687, 7287
Fluoride	(as fluorine, F2) 0.1, 0.1, 25; (1.58); p. 146	72093, 72293, 72393, 35691, 6487, 71193, 71693, 72093
Manganese	1mg (ST3mg), C 5mg, 500mg; –; p.190	37991, 72293, 72393, 7287
Methylene Chloride	*Ca*, 500, *Ca*/2300; (3.53); p.208	4387, 01891, 0886, 12091, 31791, 6187, 38291, 6287, 6487, 6687, 72093, B106089, B206289
Nickel	Ca/0.015mg, 1mg, Ca/10mg; –; p.224	0686, 4387, 6687, 72093, 7287
Nitrate/Nitrite		6287, 71693
Pentachlorophenol	0.5mg, 0.5mg (skin), 2.5mg; –; p.242	72293, 72393
Plutonium-239/240		72093, 72393
Selenium	0.2mg, 0.2mg, 1mg; –; p.276	0686, 4387, B206789, 37991
Silver	0.01mg, 0.01mg, 10mg; –; p.280	7087, 7287
Tetrachloroethene	*Ca*, 100/C200, *Ca*/150; (6.89); p.300	4387, 7287, B106089, 38291
Trichloroethene	*Ca*/60-minREL=2/10hrTWA=25, 100/C 200, *Ca*/1000; (5.46); p.316	4387, 31791, 6674, 6687, 71893, 7287, B106089, B206489, 38291
Vanadium	(as mgV/m3 in V2O5 dust) C 0.05 (15min), C 0.5, 35; –; p.328	7287
Vinyl Chloride	*Ca*, 1/C 5, *Ca*/N.D., (2.6); p.330	6474, 6574, 72293, B106089

WELL ABANDONMENT SUMMARY

Well No.	General Location	Comp. Zone	Abandonment Method	TIER2 EXCEEDANCES (mg/l or pCi/l)
71193	Landfill	AL	In Place/Casing Dest.	bis (.007), Mn (1.96)
71493	Landfill	AL	In Place/Casing Dest.	NE
71693	Landfill	AL	In Place/Casing Dest.	1,1DCA (2.164), Mn (2.87), NOx (102)***
71893	Landfill	AL	In Place/Casing Dest.	1,1DCE (.007), TCE (.015)
72093	Landfill	AL	In Place/Casing Dest.	Aroclor1232 (.003), Aroclor1242 (.011), Be (.006) bis (.015), Cr (.132), Fl (4.3), Mn (8.633), MCl (.058), Ni (.112), Pu239/240 (.49)*****
72293	Landfill	AL	In Place/Casing Dest.	4-methyl-2-pentanone (1.2), Aroclor1232 (.001), As (.093), bis (.011), Fl (7), Mn (8), pentachlorophenol (.004), VCl (.01)
72393	Landfill	AL	In Place/Casing Dest.	Am241 (.221), Sb (.056), Aroclor1232 (.011), Aroclor1242 (.004), benzene (.026), bis (.044), Fl (8.6), Mn (2.01), pentachlorophenol (.062), Pu239/240 (.799)*****
72493	Landfill	AL	In Place/Casing Dest.	NE
PHASE II WELLS				
0686**	No Name Gulch	AL	In-Place	Cr (.565), Ni (.211), Se (.27)
5886**	Woman Ck./881 Hillside	AL	In-Place	NE
3587**	S. Walnut Ck.	AL	In-Place	NE
B207289	Landfill	BR	In Place	NE
B208389	N. Walnut Ck.	BR	In Place	NE
B208489	N. Walnut Ck.	BR	In Place	NE
P213889	IA near IHSS 165	BR	In Place	NE
P213989	IA near IHSS 165	AL	In Place	NE
B317189	E. Boundary	BR	In Place	NE
00691	Near IHSS 119	AL	In Place	NE
00791	Near IHSS 119	AL	In Place	NE
00991	Near IHSS 119	BR	In Place	NE
02191	IA/Mound	AL	In Place	NE
02391	S. Walnut Ck.	AL	In Place	NE
02791	S. Walnut Ck.	AL	In Place	NE
03891	S. Walnut Ck.	AL	In Place	NE
05991	Near IHSS 119	AL	In Place	NE
40491	SE. Boundary	AL	In Place	NE
40791	E. Boundary	AL	In Place	NE
75892	IHSS 156.2	AL	In Place	NE
44993	N. Walnut Ck.	AL	In Place	NE
46493	N. Walnut Ck.	AL	In Place	NE

Phase I abandonments are considered high-priority abandonments; Phase II are lower-priority abandonments.
Concentrations are calculated as (reported Tier2 ratios in groundwater) X (Tier2 Groundwater Action Levels).
VCl = vinyl chloride; MCl = methylene chloride; NOx = nitrate/nitrite; bis = bis(2-ethylhexyl)phthalate
** Stainless steel well construction.
***Concentration calculated by using more conservative Tier2 MCL for Nitrate as N (1.00E+01) instead of Nitrite as N (1.00E+00).
*****MCLs for Pu239 and Pu240 are both 1.51E-01; used 1.51E-01.
ND = No data found
NE = No Tier2 exceedances found.

WELL ABANDONMENT SUMMARY

Well No.	General Location	Comp. Zone	Abandonment Method	TIER2 EXCEEDANCES (mg/l or pCi/l)
			PHASE I WELLS	
5074	SEPs	BR	In Place	ND
5174	SEPs	BR	In Place	ND
5274	SEPs	AL/BR	In Place	ND
5374	IA near IHSS 165	BR	In Place	ND
5474	Near IHSS 156.2	BR	In Place	ND
5574	In IHSS 156.2	BR	In Place	ND
5674	In IHSS 156.2	BR	In Place	ND
5774	IA near IHSS 165	BR	In Place	ND
5874	N. Walnut Ck.	BR	In Place	ND
5974	N. Walnut Ck.	AL/BR	In Place	ND
6074	N. Walnut Ck.	BR	In Place	ND
6174	N. Walnut Ck.	BR	In Place	ND
6274	N. Walnut Ck.	BR	In Place	ND
6374	N. Walnut Ck.	BR	In Place	ND
6474	Landfill	BR	In Place	VCl (.02)
6574	Landfill	BR	In Place	VCl (.014)
6674	Landfill	BR	In Place	TCE (.042)
6774	Church/McKay/Walnut	AL/BR	In Place	ND
0786**	Landfill	AL	In Place/Overdrill	NE
0886**	Landfill	BR	In Place/Overdrill	MCl (.019)
3786**	Pond B-5	AL	In Place	NE
4387**	IHSS 119.1	AL	In Place	1,1,2-TCA (0.067), 1,1-DCA (10.244), 1,1-DCE (8.5), 1,2-DCA (0.026), Sb (0.52), CCl4 (0.4), Cr (1.09), MCl (0.62), Ni (0.922), Se (0.343), PCE (6), TCE (11)
6187**	Landfill	AL	In Place/Overdrill	MCl (.01)
6287**	Landfill	AL	In Place/Overdrill	MCl (.005), NOx (10.6)
6487**	Landfill	AL	In Place/Overdrill	1,1DCA (1.443), Sb (.068), Mn (4.27), MCl (.011)
6587**	Landfill	BR	In Place/Overdrill	1,1DCE (.009)
6687**	Landfill	AL	In Place/Overdrill	1,1DCE (.01), Be (.006), Cu (7.14), MCl (.005), Ni (.255), TCE (.023)
7087**	Landfill	BR	In Place/Overdrill	Ag (.313)
7287**	Landfill	AL	In Place/Overdrill	1,1DCA (1.876), Al (456), Sb (.061), Ba (5.06), Be (.032), Cd (.019), CCl4 (.012), Cr (.58), Cu (6.43), Mn (6.2), Ni (1.07), Ag (3.04), PCE (.014), TCE (.16), V (.754)
(PZ) 1288	IA near 771	AL?	In Place	ND
(PZ) 1388	IA near 779	AL?	In Place	ND
B106089	Landfill	AL	In Place/Casing Dest.	1,1DCA (3.751), 1,1DCE (.015), 1,2Dichloropropane (.005), CCl4 (.013), MCl (.017), PCE (.006), TCE (.012), VCl (.004)
B206289	Landfill	BR	In Place/Casing Dest.	MCl (.02)
B206489	Landfill	AL/BR	In Place/Casing Dest.	1,1DCA (1.731), TCE (.062)
B206589	Landfill	BR	In Place/Casing Dest.	NE
B206789	Landfill	BR	In Place/Casing Dest.	Se (.815)
01891	IA/IHSS 108	BR	Casing Destruction	MCl (.007)
12091	IA/IHSS 108	BR	Casing Destruction	Am241 (1.09), MCl (.016)
31791	Woman Ck./881 Hillside	AL	In Place	MCl (.011), TCE (.012)
35691	881 Hillside	AL	In Place	aBHC (1.2E4), bBHC (5.5E5), Sb (.066), Mn (.607)
37991	IHSS 119.1	BR	In Place/Casing Dest.	Sb (0.088), bis (0.011), Mn (1.48), Se (0.32)
38191	IHSS 119.1	AL	In Place	NE
38291	IHSS 119.1	AL	In Place	1,1-DCA (1.01), 1,1-DCE (0.064), MCl (0.007), PCE (0.058), TCE (0.41)
00393	Landfill	AL	In Place/Casing Dest.	bis (.054)
00493	Landfill	AL	In Place/Casing Dest.	NE

I have read the contents of this supplemental HSP, am familiar with the 1996 WARP HSP, and agree to comply with the contents within.

Name	Signature	Title	Date

NOTICE:

"BEST AVAILABLE COPY"

PORTIONS OF THE FOLLOWING DOCUMENT ARE ILLEGIBLE

The Administrative Record Staff

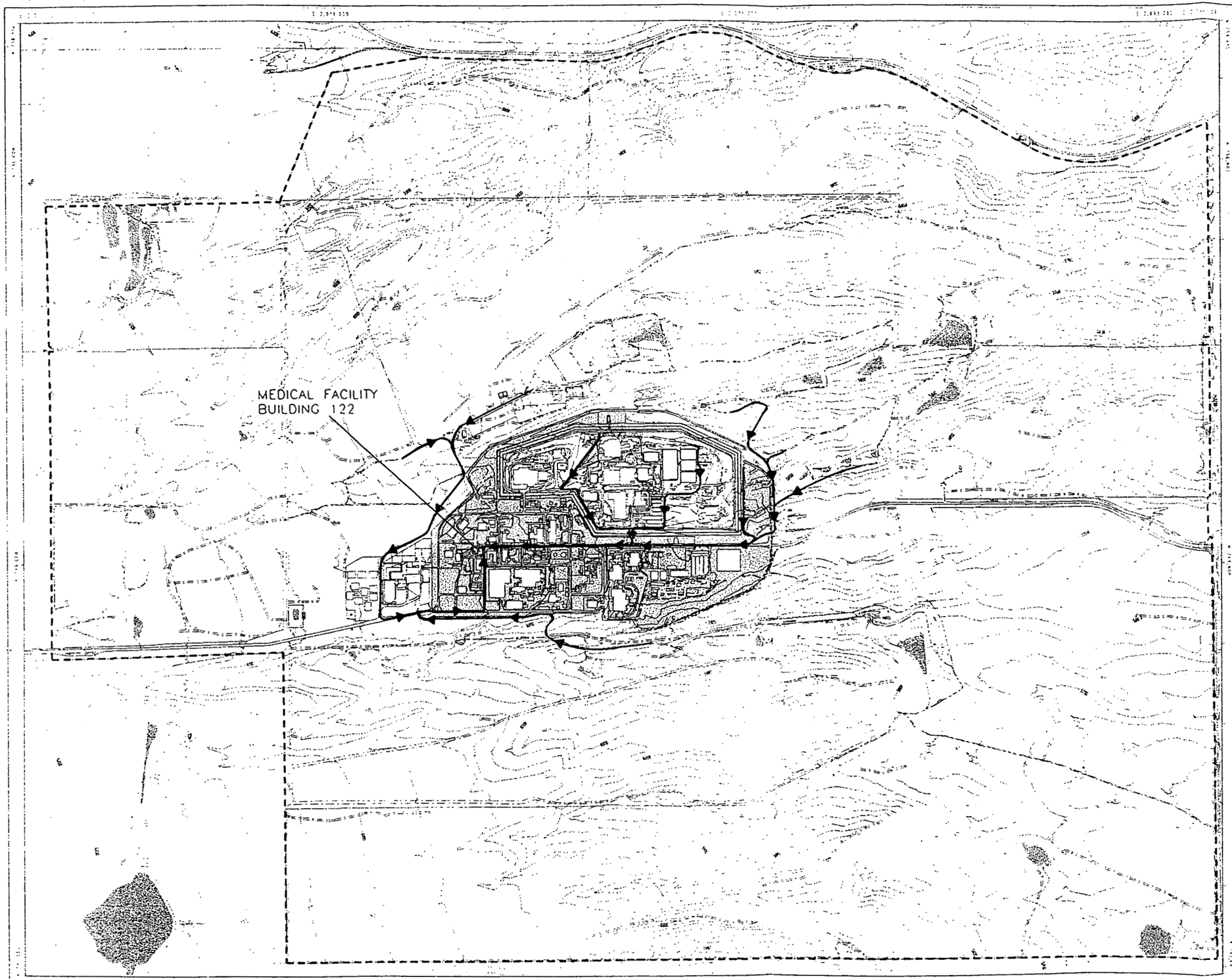


Figure 1
ROUTE-TO RFETS
MEDICAL FACILITY (BLDG 122)

EXPLANATION

- BufferZone
- Industrial Area
- Protected Area

Standard Map Features

- Buildings
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences
- Contours (20' Intervals)
- Rocky Flats boundary
- Paved roads
- Dirt roads

Route to Building 122

DATA SOURCE:
Buildings, roads, and fences provided by Facilities Engr. EG&G Rocky Flats, Inc. - 1991
Hydrology provided by USGS - (date unknown)

Scale = 1 : 20450
1 inch represents approximately 1704 feet

500 0 1000 2000ft

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by:
RMRS Rocky Mountain Remediation Services, L.L.C.
Geographic Information Systems Group
Rocky Flats Environmental Technology Site
P.O. Box 464
Golden, CO 80402 0464

MAP ID: 97-0080 April 16, 1997